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ABSTRACT

Objective: To determine if telemedicine can be utilized to: further gynecologic oncology fellowship training, offer continuing medical education (CME) through distance learning (regional or abroad), improve patient care by allowing primary care providers regular access to sub specialists, and enable patients abroad access to genetic counseling for health care providers within the Department of Defense (DoD).

Methods: We initiated a video teleconferenced (VTC) gynecologic oncology tumor board and a CME lecture series in July 2000. Attendees included medical oncologists, radiation oncology staff and residents, oncology nurse specialists, gynecologic oncology staff and fellows, and Ob/Gyn residents and medical students. All patients referred to our tertiary military medical treatment facility (MTF) with gynecologic malignancies were presented at the multidisciplinary conference. Additionally, referrals from military health care providers abroad were presented by the referring physician. VTC presentations included histology and cytology as well as pertinent radiographs which were visualized by all attendees irregardless of location.

We developed a triservice obstetric outreach program for high risk perinatal consults and a gynecologic oncology outreach program for military providers within Europe as well as the continental United States for the care of patients with preinvasive or invasive gynecologic neoplasms. Continuing medical education credits were made available for participants of each conference as well as for the annual meeting of the Armed Forces District of the American College of Obstetrics and Gynecology which was teleconferenced from Portsmouth, Virginia.

Results: We have implemented as a "stand of medical care" the Gynecology Oncology VTC Tumor Board. Multiple civilian and military medical facilities both in the continental United States and abroad are regularly able to participate in our VTC tumor board. Numerous patient evacuations to our MTF were obviated through the evaluation of radiographs and pathology at the VTC tumor board. All patients referred from abroad for genetic counseling are initially evaluated and counseled with the use of VTC. Additionally, patient eligibility for local and national protocols are reviewed at the weekly conference. CME credit is given to all participants at all locations.

After the tumor board, resident and fellow lectures are given by staff from multiple disciplines at various facilities by VTC. Fellows, residents and students who are off campus are able to participate in the lecture series via VTC. At the conclusion of a lecture a VTC laboratory meeting occurs between gynecologic oncology and laboratory staff and fellows located at multiple clinical and research sites.

The obstetric and gynecology weekly conferences began in July 2001 and continue today. A bandwidth between 256-384 kbps is used depending on the participating site. Participating sites include military treatment facilities in Landstuhl, Hiedelburg, and Spangdahlem, Germany; Rota, Spain; Sigonella, Italy; as well as multiple sites within the continental United States. Over 500 patients have been presented to subspecialists at Walter Reed Army Medical Center and the National Naval Medical Center since the program started.

Conclusions: Video teleconferencing is useful to further patient care by allowing primary care providers, off campus and abroad, access to subspecialty physicians. In addition, VTC improved the educational opportunities for residents and fellows by allowing greater participation independent of location.

Access to subspecialty care for DoD beneficiaries within Europe and the continental United States was markedly improved by regularly scheduled consultations with obstetric and gynecologic sub specialists.

BODY

Medical consultation on oncology cases is routine medicine. These consults serve as a confirmation of diagnosis and also as a teaching tool for the residents and adjunct staff. Physician specialists in Pathology, Radiology, Surgery, Oncology, and Gynecology are required to get together to review and evaluate patient data for the planning of patient care with the ultimate goal of increasing the survival rate of persons diagnosed with gynecologic malignancies.

Medical treatment facilities throughout Europe submit gynecologic oncology specimens for review to the Walter Reed Army Medical Center (WRAMC) Gynecologic Tumor Board for evaluation via video teleconferencing at 256- 384 Kbps.

This project evaluated the effects of tele-oncology on the quality of patient care, quality of continuing medical education, patient's quality of life, patient and provider satisfaction, and the potential cost effectiveness. The evaluation took place through the use of various Web-based and hardcopy surveys, evaluation of cost data, and patient medical records review.

This project provided an objective measure to evaluate new technology, and established a gynecologic oncology consultation service capable of supporting many more patients than was currently possible.

KEY RESEARCH ACCOMPLISHMENTS

The goal of our project was to decrease the morbidity and mortality caused by gynecologic malignancies in servicewomen and dependents in Europe and offer military health care providers within the European theatre an opportunity for continuing medical education. I believe we surpassed the initial goals of the project.

With the placement of video teleconferencing equipment at the National Naval Medical Center, Bethesda, Maryland in addition to the preexisting equipment in the Gynecology clinic at Walter Reed Army Medical Center, we were able to expand our program to include not only Gynecology referrals but also Obstetrical referrals from the European theatre.

In addition to improving patient care, the annual 2001 meeting of the Armed Forces District of the American College of Obstetricians and Gynecologists from Norfolk, Virginia was broadcast via VTC to military health care providers in the European theatre. This enabled military health care providers an opportunity for continuing medical education as well as an opportunity to interact with their peers in the military health care community around the world.

REPORTABLE OUTCOMES

As we have broadened our services to include all disciplines within Obstetrics and Gynecology, we plan to continue to offer subspecialty consultative services to military health care providers within the European theatre. Our Gynecology consultative services via Video teleconferencing have increased to support approximately 20-40 patients per week.

In addition, the high risk obstetrics team under the direction of LTC Macedonia USA and LCDR Gherman USNR is having weekly conferences with MTFs in Europe most notably, Landstuhl. Furthermore, Col Melissa Fries USAF is expanding a program of weekly Genetic Counseling sessions with multiple sites across the DoD. This service was started by Captain Charles Macri USN with providers at Landstuhl, Germany.

We continue broadcasting via VTC our three weekly conferences (Obstetrics, Genetic Counseling, and Gynecology and Gynecologic Oncology) broadening the CME opportunities for health care providers in and out of CONUS.

CONCLUSIONS

The Gynecologic Oncology Outreach Evaluation Project was a highly successful project that has already gone from a Research Project into being part of routine standard of medical care. Continuing Medical Educational (CME) opportunities have increased for health care providers in and out of CONUS.

This project was not funded for, nor does the Walter Reed Army Medical Center (WRAMC) support a staff member to track patient encounters or to administer CME credits for educational opportunities. As such there are no hard numbers to provide.

Since this project has become standard of care at WRAMC, there is great potential to copy the program for other military medical centers, thus providing increased patient care and enhanced opportunities for CME credit Department of Defense wide.

APPENDIX A: TECHNICAL SUMMARY

The Multimedia Presentation Center in the Walter Reed AMC Gynecologic Service is capable of supporting a variety of presentations to include video teleconferencing (VTC).

The VTC system is a custom designed PictureTel 4500 series codex with AMX touch control panel designed to allow video input from various sources. Video sources include: a video camera located at the front and rear of the conference room, a standard WINTEL personal computer to broadcast power point or other computer files, a microscope, a document camera, or from a digital slide projector. The VTC system supports 384 kilobits per second (Kbps) transmission through three Integrated Services Digital Network (ISDN) communications lines. A separate control room was included in the design of the multimedia presentation center that provides the option to allow a video technician to control the multiple video inputs and room lighting without interfering in the actual conference. There is the capability to record the VTC session. Special lighting and audio components were installed to provide the best VTC experience possible.

To allow multiple video participants to partake in the GYN Onc VTC Tumor Board, a PictureTel Montage Video Bridge is used. Video sessions can run from 128 to 384 Kbps and support up to four remotes sites on a regular bases. Exceptions can be made to allow for a maximum of seven sites at 384 Kbps if required.

APPENDIX B: FUNDED PERSONNEL AND PARTICIPANTS

Project Investigator:

LCDR John Elkas, MC, USN, WRAMC Division of Gynecologic Oncology

Project Officer:

Mr. Thomas R. Bigott, NARMC Telemedicine Directorate

Project Participants:

LTC G. Scott Rose, MC, USA, WRAMC Division of Gynecologic Oncology

Ms. Karen Harrington, WRAMC Division of Gynecologic Oncology

LtCol Chris Zahn, MC, USAF, USUHS Gynecology Service

LTC Chris Macedonia, MC, USA, NNMC Obstetrics Service

LCDR Gherman, MC, USNR, NNMC Obstetrics Service

Col Melissa Fries, MC, USAF, USUHS Genetics Department

Captain Charles Macri, MC, USN, USUHS Genetics Department

Mr. Dale Garaux, LRMC Telemedicine Department

Ms. Daisy T. DeWitt, NARMC Telemedicine Directorate

Mr. Tim Bridges, NARMC Telemedicine Directorate

Ms. Vivian McGowan, NARMC Telemedicine Directorate

Ms. Janet Gaines, NARMC Telemedicine Directorate

Dr. Dan Rayburn, NARMC Telemedicine Directorate

APPENDIX C: SUPPORTING DOCUMENTATION

C-1: Gynecologic Oncology Tumor Planning Conference
Attendance Sheet (for CME Credit)

C-2: Gynecologic Oncology Tumor Planning Conference
Walter Reed Army Medical Center - Tuesdays 0900 ET Survey

C-3: Gynecologic Oncology
Tumor Planning Conference 2000-2001
Tuesdays at 0900 ET

Appendix C-1
Gynecologic Oncology Tumor Planning Conference
Attendance Sheet (for CME Credit)

*Physicians **must** sign for CME credit. Please print your name **legibly** and supply the appropriate information in the columns below.*

Date: _____ **Location (Department and Facility Name):**

_____

Time: **0900 (ET) Tuesday**

Last Name	First Name	Rank	MD/DO	Resident (Y/N)	MTF Department	Hours Attended	

This activity has been planned and implemented in accordance with the Essentials and Standards of the Accreditation Council for Continuing Medical Education through joint sponsorship of the US Army Medical Command and WRAMC. This educational activity is designated for a maximum of **3.0** hours in Category I credit toward the AOA/AMA Physician's Recognition Award. Each physician should claim only those hours in which he/she actually spent in the educational activity.

Appendix C-2
Gynecologic Oncology Tumor Planning Conference Survey

Walter Reed Army Medical Center - Tuesdays 0900 ET

The following survey is important to identify the usefulness of this program as an aid to patient management and as a tool for Continuing Medical Education (CME). The survey will also serve as a guide to improve/enhance the program and identify problems or concerns. Please take a few minutes to complete the survey. You may return the survey by mail: Department of OB/GYN by Fax: DSN 295-1988

USUHS
4301 Jones Bridge Road
Bethesda, MD 20914-4799

electronically via e-mail to: Dr. Zahn (czahn@usuhs.mil)
Dr. Elkas (john.elkas@na.amedd.army.mil)

General - Technological:

1) How often have you been able to "attend" the conference via VTC (please circle)?

< 1/month 1/month 2/month >2/month

2) How was the quality of the video presentation/discussion (please rate 1 – 5; 1=lowest)?

1 2 3 4 5

3) How was the quality of the video applications (radiographs, pathology as applicable)? (Please rate 1 – 5, with 1 lowest.)

1 2 3 4 5

4) How was the audio quality? (Please rate 1 – 5, with 1 lowest.)

1 2 3 4 5

5) Please rate the "ease" of dialing in to the conference (technical aspects), on a 1 – 5 scale as above.

1 2 3 4 5

General – Clinical:

1) Was the information presented beneficial in helping you to manage patients? (Please circle.) Yes No

2) Did the information help you or your group manage patients as opposed to referral to another provider, either locally or distant (such as air-evac)? Yes No

3) Did the information presented result in a change in status of an air-evac patient? Yes No

Specific Cases Referred (to answer if you referred specific cases for review):

1) Did the information provided help manage the patient? Yes No

2) Did the information provided help you manage the patient as opposed to distant or local referral? Yes No

3) Did the information provided help you to manage the patient on site and decrease the need for air-evac? Yes No

4) Did your participation actually result in referral (air-evac) due to new or updated information or interpretation? Yes No

5) Was the information obtained in a timely fashion to provide care for the patient? Yes No

6) Do you feel the patient was satisfied with he results from this conference or your participation in the conference? Yes No

CME:

1) Did the conference meet your expectations? Yes No

2) Did the conference add to your knowledge base? Yes No

3) Did information presented enhance your skills/abilities? Yes No

4) Did the discussants present the information clearly and in a manner you could understand? Yes No

5) Do you feel the conference was useful? Yes No

6) Would you like to see this conference continued? Yes No

7) Please rate the overall conference on a scale of 1 – 5 (with 1 being lowest).

1 2 3 4 5

Additional Suggestions/Comments?

Appendix C-3
Gynecologic Oncology
Tumor Planning Conference 2000-2001
Tuesdays at 0900 ET

Location: Gynecology Conference Room, Walter Reed Army Medical Center

Contact Information:

John C. Elkas, LCDR, MC, USN
202-782-8513 (DSN 662-8513) (Fax: -9278)
john.elkas@na.amedd.army.mil

Christopher M. Zahn, LtCol, MC, USAF
301-295-8262 (DSN 295-8262) (Fax: -1988)
czahn@usuhs.mil

(For VTC/Electronics contact, see below)

Educational Format: Presentation of case histories with review of all pertinent radiographs, pathologic material, and discussion of management.

Distance Application: To allow active and passive participation via video teleconferencing. If distance audience has cases they would like reviewed, the pertinent materials (pathology slides, radiographs) may be sent to allow review of the material, and the case would be presented at a subsequent Tumor Conference.

Objectives: At the end of the event, the participant will be able to:

1. Propose a reasonable follow-up plan for the individual patient
2. Recognize dilemmas in the pathologic diagnosis of certain lesions
3. Discuss the implications of the treatment plan and diagnosis with the patient
4. Compare therapeutic options and critically evaluate their feasibility in the light of current data
5. Describe the recommended treatment options

Credit Designation: The US Army Medical Command designates this educational activity for a maximum of **one hour (1.0)** of Category 1 credit towards the AOA/AMA Physician's Recognition Award. Each physician should claim only those hours of credit that he/she actually spent in the educational activity.

This activity has been planned and implemented in accordance with the Essentials and Standards of the Accreditation Council for Continuing Medical Education (ACCME) through joint sponsorship of the US Army Medical Command and Walter Reed Army Medical Center.

Accreditation Statement: The US Army Medical Command is accredited by the ACCME to sponsor continuing medical education for physicians.

Policy on Disclosure: It is the policy of the US Army Medical Command that the sponsor and the faculty disclose real or apparent conflict of interest relating to the topics of this educational activity. Detailed disclosure will be made in the course syllabus materials and/or verbally prior to the commencement of the activity.

Commercial Support: None.

Distance Procedure: If interested, the following procedures are in place:

1. Contact Drs. Elkas or Zahn to let us know of your participation.
   -This overprint as official notification of a CME activity.
   -Attached is a copy of a formatted attendance sheet that **must** be used to document attendance at the activity. This sheet may be mailed/faxed periodically (approximately once per month or every 2 months) to Dr. Zahn. This sheet must be printed and faxed/mailed; it cannot be sent electronically as a signature is required to verify attendance for CME purposes. This sheet will be the documentation used to assign appropriate CME hours in preparation for CME certificates at the end of the year. It is **imperative** to document attendance appropriately. CME certificates will be awarded annually based on the documented attendance. For the present time, please save this attendance sheet on your PC and print as needed; additional attendance sheets may be e-mailed by Dr. Elkas or myself if needed. In the near future, there will be a separate Web site for this activity that will have attendance sheets available.

2. The VTC connections for dialing to Walter Reed will be done through Landstuhl. Please contact directly, or have your VTC personnel contact the TMED (Telemedicine Directorate) at Landstuhl (LRMC) for instructions to connect to the conference. The primary initial point of contact is Mr. Dale Garaux, the Director of Telemedicine at LRMC (his contact information is listed below). Mr. Garaux will be able to discuss technological issues with personnel at your facility, and then direct to follow-on points of contact for details regarding dialing in to the conference.
   -Mr. Dale Garaux
   -Director of Telemedicine
   -European Regional Medical Command
   -EDS-D/SIDDOMS
   -US Hospital/Am Kirchberg
   -West Sixth Str; Geb. 3767, 2 OG
   -66849 Landstuhl, Germany
   -DSN 486-7899
   -Mobile: +49(0) 1708543633
   -Fax: +49(0) 6371-867777 (DSN 486-7777)
   -e-mail: dale.garaux@lnd.amedd.army.mil

3. If there is/are cases you would like discussed, please send all pertinent materials (pathology

slides, radiographs, other appropriate materials) to the Gynecologic Oncology Division at Walter Reed Army Medical Center. These items will be reviewed by Gynecologic Pathology, Gynecologic Oncology, Radiation Oncology, and Radiology as appropriate and presented/discussed at a subsequent Tumor Planning Conference as described above (arrangement of which may be coordinated according to your schedule). Of course, it is not necessary to "attend" only if you have cases presented; there are many interesting and

difficult oncology and non-oncology cases discussed. The contact point for sending the material is:

-Ms. Karen Harrington

-Division of Gynecologic Oncology

-Walter Reed Army Medical Center

-Building 2, 2nd Floor, Room 2J 06

-6900 Georgia Avenue NW

-Washington, DC 20307

-DSN 662-8513

Survey: In order to assess effectiveness of this program for aid in patient management and as an educational and CME tool, a survey/questionnaire is being developed. The purpose of the survey will be to collect data such as whether your participation resulted in change/improvement in patient management including air-evac necessity, patient and provider satisfaction based on participation in the conference or information obtained from the conference, and quality/satisfaction with the conference as a CME tool. This survey will be available on the previously described Web page when the Web page and survey are fully developed, and we would appreciate your response and cooperation in completing the surveys periodically (the surveys are necessary for CME purposes).

Offering: This program will be offered to providers at all military service facilities in the European theater initially. Once the program is established, and technologic details are further defined, this CME offering will then be opened to CONUS facilities and potentially Pacific theater facilities.

APPENDIX D: PRESENTATIONS, POSTERS, PUBLICATIONS

3/1/2002, Poster, "THE USE OF TELEMEDICINE IN GYNECOLOGIC ONCOLOGY", Society of Gynecologic Oncologists Annual Meeting, New Orleans, LA

6/1/2002, Oral, "Gynecology and Obstetrics Atlantic Link Study", TATRC General Officer's Briefing, Los Angles, CA

6/1/2002, Poster, "Gynecology and Obstetrics Atlantic Link Study", American Telemedicine Association Annual Conference, Los Angles, CA

4/27/2003, Oral, "Obstetrics and Gynecology Atlantic Link Study", American Telemedicine Association Annual Conference, Orlando, FL

11/13/2003, Oral, "Gynecology Oncology Outreach Evaluation", TATRC Product Line Review, MD